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HNK-1 Antigen Is not Specific for Natural Killer Cells

To the Editor:

we read with great interest the article by Habets et al, published in the March 1988 issue [1]. The peritumoral inflammatory infiltrate of basal cell carcinoma (BCC) has been investigated by using a series of monoclonal antibodies. The authors provided evidence for a minor participation of natural killer (NK) cells, in defense against BCC, on the basis of the low percentage of Leu-7 (HNK-1)-positive cells in the infiltrate. Unfortunately the HNK-1 antigen, isolated by Abo and Balch in 1981 [2], cannot be considered specific for NK cells. Rather, the HNK-1 antigen is coexpressed by most CD8-positive/CD11b-positive suppressor cells [3]. Indeed, Phillips and Babcock identified a new antigen in 1983 [4], named NKP-15 (CD16), considered to be specific for essentially all human NK cells. A number of findings demonstrate that CD16 antigen is specific for NK cells, while the HNK-1 antigen is not. First, functional studies from Lanier et al [5] and Abo et al [6] have well established that CD16-positive cells display high levels of NK activity, while HNK-1-positive/CD16-negative cells possess low levels of cytotoxic cell function. On the other hand, CD16-positive/HNK-1-negative cells, when stimulated with interleukin-2 [7] or with NK-sensitive tumor cells K-562 [8], markedly augment their NK cell activity, while stimulated HNK-1-positive/CD16-negative cells never display higher NK cell function. Moreover, CD16-positive cells are able to phagocytize AET-sheep red blood cells (SRBC), whereas HNK-1-positive/CD16-negative cells never display phagocytic capability for AET-SRBC [9]. As for morphologic characteristics, CD16-positive cells show significant ultrastructural differences in comparison to HNK-1-positive/CD16-negative cells [10,11], as previously demonstrated by using a peroxidase-colloidal gold double labeling in immunoelectron microscopy [12]. Ultrastructural differences were confirmed by morphometric investigations [13]. Finally, a new antigen, named NKH-1 (Leu-19), which is expressed on the whole non-major histocompatibility complex-restricted cytotoxic cell population, comprising NK cells has recently been described [14,15].

In conclusion, the HNK-1-positive/CD16-negative cell subset seems to be distinct from the CD16-positive NK cell population. As a result, immunohistochemical studies performed by Werner Habets et al cannot rule out the possibility that NK cells play a role in the defense against BCC. This issue could be resolved by further investigations dealing with CD16 and NKH-1 antigens.

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REPLY

The authors acknowledge Dr. Manara's comments regarding our recent publication [1]. Indeed, as stated in our article we did not totally exclude the participation of leu 7 (HNK-1)-positive cells in the defense against Basal cell carcinoma (BCC). In a recent publication Kohchiyama et al [2], using leu 7 (HNK-1) monoclonal antibody, also concluded that the cellular cytotoxicity mediated by NK cells may not be the main defense against BCC. Although HNK-1 antigen may be coexpressed by most leu 2a (CD-8) positive suppres-